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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/681,877	10/09/2003	Yoshiyuki Tonami	36856.1137	9590

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EXAMINER

LAM, CATHY FONG FONG

ART UNIT	PAPER NUMBER
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1775

DATE MAILED: 01/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/681,877

Applicant(s)

TONAMI ET AL.

Examiner

Cathy Lam

Art Unit

1775

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 21 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-11 and 18-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 18-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10-09-2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>9/7/05 &amp; 11/21/05</u> . | 6) <input type="checkbox"/> Other: _____  |

In view of the amendment and remarks filed on October 21, 2005, the pending claims continue to be unpatentable as following:

***Information Disclosure Statement***

1. The information disclosure statement filed on September 07, 2005 fails to comply with 37 CFR 1.98(a)(3) because the reference KR 2001-0050995 does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is **not in the English language**. It has been placed in the application file, but the information referred to therein has not been considered.

***Claim Rejections - 35 USC § 102***

2. Claims 1-2, 6-8, 11 and 18-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Wang et al (US 6776861).

Wang discloses a ceramic multilayer circuit board comprised of a plurality of constraining tapes (102) and a plurality of primary tapes (101). The constraining tape is placed between two primary tapes, or may be placed between layers of primary tape. Or the constraining tapes may be placed on the outer surface of the primary tape materials (col 2 L 59-64 & col 3 L 2-3).

The examiner is taking the position that the constraining tapes taught by Wang resemble the correcting insulating layer(s) claimed by Applicant. Since the constraining tapes influence the primary tapes that ensures x-y shrinkage is minimal, if not zero (col 4 L 12-13). Since the constraining tape and the primary tapes have different transition

Art Unit: 1775

temperature during heating, inherently their thermal expansion coefficients are different as well (col 3 L51-58).

The constraining tapes contain material such as glass and quartz, etc. (col 5 L 18-col 6 L 60). The constraining tapes the primary tapes are initially formed by a slurry dispersion of the glass, ceramic filler, polymeric binder and solvent(s), etc. and cast as a green tape. Via holes are formed in the green tapes and filled with conductive ink. Conductive patterns are formed between the green layers and connected through the conductive ink filled via holes (col 8 L 38-60).

***Claim Rejections - 35 USC § 103***

3. Claims 1-11 and 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al (US 6776861).

Wang teaches a constraining layer(s) placed between or on top of the primary tapes. The constraining and the primary tape normally consist of a glass and a ceramic filler, but they may include more than one glass or more than one ceramic filler such as quartz (col 3 L 9-11 & col 6 L 60).

The prior art however are silent about the conductive layers are made from a photosensitive conductive paste nor the insulating layers are made from a photosensitive insulating paste.

The examiner is taking the position that since Wang teaches all the claimed ingredients for the constraining tape and the primary tape, that is glass, ceramic filler, polymeric binder and solvent(s) (col 8 L 38-41), depending on the organic medium

Art Unit: 1775

chosen, the insulating layer(s) (before cured) could very well be a photosensitive insulating paste.

Since applicant has not disclosed using photosensitive conductive paste and photosensitive insulating paste solves is for any particular purpose or solves any stated problem, the examiner is taking the position that the invention would perform equally well with the conventional conductive paste and the dielectric layers as disclosed by Wang.

### ***Response to Arguments***

4. Applicant's arguments filed on October 21, 2005 have been fully considered but they are not persuasive. Applicant disagrees with the art rejection and raises the following issues:

A. Nowhere does Wang teach or suggest a ratio of vitreous silica to quartz in the correcting insulating layer differs from that in the other insulating layers such that the correcting insulating layer corrects the warpage of the laminate.

B. Wang does not teach the feature of "the thermal expansion coefficient of the correcting insulating layer differs from that of the insulating layers that....."

In respond to the above issues:

A. Wang's constraining layer comprised of a glass, a ceramic filler and other fillers such as a quartz (col 3 L 9-11 & col 6 L 60).

Wang also teaches that the electrical properties of the constraining tape may be adjusted with a choice of materials that make up the tape.

Art Unit: 1775

Since applicant **is not claiming** any specific silica to quartz ratio, Wang's constraining layer (or correcting insulating layer) continues to anticipate the present invention (see Table 1 of Wang).

B. Wang's constraining layer has a different sintering temperature and different transition temperature than the primary tape, the two layers inherently have different thermal expansion coefficient (col 3 L 52-65).

### ***Conclusion***

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cathy Lam whose telephone number is (571) 272-1538. The examiner can normally be reached on 9am-6pm.

Art Unit: 1775

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on (571) 272-1535. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Cathy Lam  
Primary Examiner  
Art Unit 1775

cfl  
Jan, 06, 2006